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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,002	06/18/2001	Yasumitsu Ito	5576-126	3393

20792 7590 02/13/2003

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 02/13/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,002	ITO, YASUMITSU	
	Examiner	Art Unit	
	Raymond Alejandro	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 06/19/00. It is noted, however, that applicant has not filed a certified copy of the 2000-182612 application as required by 35 U.S.C. 119(b).

Claim Objections

2. Claims 1 and 11 are objected to because of the following informalities: the adjective "these" (i.e. this electrodes) should be changed to a recitation providing proper antecedent basis so as to have a better understanding of the instant claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 and 11 recites the limitation "the catalysts" in lines 7 and 6, respectively. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 2 recites the limitation "the gas passage" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 2 recites the limitation "a portion of the gas diffusion layer" in lines 3 and 4-5 (two occurrence). There is insufficient antecedent basis for this limitation in the claim. Since the claims is making reference to the same limitation, it would be unclear as to what particular gas diffusion layer the claim is intended to recite.

8. Claims 4-5 and 12-13 contains the trademark/trade name "Tosflex" and "Nafion". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the ion exchange membrane materials and, accordingly, the identification/description is indefinite.

9. Claims 10 and 18 recites the limitation "a plurality of cation exchange membranes" in lines 3. There is insufficient antecedent basis for this limitation in the claim. Claims 9 and 17 contains an earlier recitation of this limitation.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 5-11 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Harada 5399184.

The instant claims are directed to solid polymer fuel cells wherein the claimed inventive concept comprises the specific exchange membrane material employed therein. Other limitations include the gas passages; the polymer materials; the carbon paper; and the membrane positioning.

As to claims 1 and 11:

Harada discloses a method for fabricating an electrode assembly for solid polymer electrolyte fuel cells comprising a cation exchange membrane as the electrolyte and electrode catalyst layers, which uses specific perfluorosulfonic acid copolymers of the cation exchange membrane and a binder used for preparing the electrode catalyst layers so as to provide an electrode assembly for the fuel cells (abstract). It is also disclosed that the method fabricates gas diffusion electrode assembly (title). The gas diffusion electrodes assembly for proton exchange membrane fuel cell comprising gas-diffusible electrodes and a cation exchange membrane is taught (col 1, lines 7-13). It is disclosed that an electrode catalyst layer or layers are formed on either or both of the surfaces of the cation exchange membrane (col 3, lines 45-48).

Figure 1 shows a proton exchange membrane fuel cell using a cation exchange membrane and an electrolyte comprising a cation exchange membrane, cathode and anode catalyst layers; carbon cloth or paper layer and carbon plates having grooves for feeding gas (current collectors) (col 5, lines 35-43).

As for claim 2:

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Figure 1 also depicts cation exchange membrane having two opposites surfaces which are in direct contact with each catalyst layers on each side.

As to claims 3, 5 11 and 13:

It is disclosed that the cation exchange membrane is made from a perfluorosulfonic acid type such as Nafion membranes which has protons on ion-exchange groups (col 1, lines 36-45/col 2, lines 23-27). This polymeric material offers good durability, chemical resistivity, oxidation resistance, and thermal stability (col 1, lines 28-35).

With respect to claims 6 and 14:

The carbon cloth or paper layer is taught (col 5, lines 35-43).

As far as claims 7-10 and 15-18:

Figure 1 illustrates that both face surfaces of the exchange membranes are vertically disposed with respect to each other (that is, stacked one after another); the grooves (more than one) for feeding gas crosses the exchange membrane surfaces at a plurality (multiple) of points (there is an inlet and an outlet therein);

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada 5399184 as applied to claims 1 and 11 above, and further in view of Burk et al 5338412.

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Harada is applied, argued and incorporated herein for the reasons above. In addition, Harada does not disclose the exchange membrane material comprising Tosflex.

Burk et al disclose an electrochemical device using a solid polymer electrolyte (abstract); which can be used in gas-fed fuel cell type electrode structure (col 3, lines 50-55) wherein the solid polymer electrolyte composite is made of Tosflex anionic resin (col 5, lines 15-25).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use Tosflex material in the exchange membrane of Harada as Burk et al disclose that electrochemical devices uses ion-exchange membranes made of ion exchange resins such as Tosflex because such material provides a relatively higher strength microporous media and has a higher purity suitable to be used as substrates.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700